



H.E.F. CANADA QUARTERLY

The Human Ecology Foundation of Canada

Vol. V, No. 3 (September, 1983)

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THE HUMAN ECOLOGY FOUNDATION OF CANADA

The H.E.F. Canada Quarterly

The H.E.F. Canada Quarterly is a publication of The Human Ecology Foundation of Canada, a charitable organization under Canadian law, operating on a non-profit basis. The Quarterly is for people who are interested in health and its relation to our environment. It deals primarily with research in the field of clinical ecology, and also describes how people have improved their health by changes in habits, diet and environment. As such, it does not offer medical advice, and we urge persons wishing to experiment with changes in their lifestyle to do so with the help and guidance of a knowledgeable physician.

The Human Ecology Foundation of Canada

One of the purposes of the Human Ecology Foundation is to promote the free exchange of information on the prevention and treatment of ecological illness. People who are ecologically ill are no longer able to adapt well to common exposures in their everyday environment. They may develop a variety of chronic or acute symptoms that are brought on by substances in the air, in food, or in water.

Natural inhalants such as pollens, dust and moulds, and even natural foods may begin to affect people adversely. This aspect of the condition is often referred to as allergy. But the many synthetic chemicals that are now common around us can also cause symptoms, and overexposure to these can trigger ecological illness even in those with no history of allergy or other sensitivity to the environment. Symptoms may be mild and merely annoying, or they may become severe enough to interfere with a person's daily activities, family life and career.

On a local basis, HEF Branches work toward finding sources of chemically less-contaminated food, water, clothing and household furnishings, as well as providing counselling on changes of lifestyle that may alleviate symptoms. The Foundation and all its Branches would like to encourage others to become involved not only in research on the effects of environment on health, but in working toward a healthier, less-polluted environment.

Subscription and Membership

Membership in the Foundation includes a subscription to The H.E.F. Quarterly, which is produced four times per year. Annual membership and subscription fee is \$20.00.

Production Information

Any products mentioned in the Quarterly should be carefully evaluated for personal compatibility, since individual sensitivities vary widely. Mention of a product does not imply that the Human Ecology Foundation endorses that product or service.

Notes From The Editor

Research Projects

Research geared to ecological illness is making progress. You will notice appeals for your help in supplying data for two research projects in this issue of the Quarterly. Bruce and Barbara Small, previous editors of the Quarterly, are involved in a study for the Canada Mortgage and Housing Corporation on indoor air pollution and its effects on Canadians (cf p. 17). This is our opportunity to tell government about our needs. Let's give Bruce and Barbara all the help we can!

Dr. Sherry Rogers is involved in a study on fatty acid metabolism (cf p.13). Research findings will help all of us, but the research findings are only as good as the data on which they are based. Let's participate!

Membership Renewals

Henceforth, all renewal notices will be sent out with the Quarterly. Notices for those members renewing in September, October, and November will accompany this issue. Please send the renewal form plus your cheque or money order to head office. All memberships and funds will now be handled by head office rather than by the various branches. In order to receive your next issue of the Quarterly, please make sure that your renewal reaches head office before NOVEMBER 15th! If we have not received your renewal by that date, your name will be removed from the membership list.

Address Labels

On your address label you will notice in the lower right-hand corner a letter and a number. They indicate the branch to which you belong and your renewal date:

E.G. K-6 = Kitchener, June
O-3 = Ottawa, March
T-11 = Toronto, November
H-10 = Hamilton, October
Q-1 = Head Quarters, January

Networking

Gwen Laurence from Capreol is seeking the names and addresses of people in Northern Ontario who suffer from ecological illness in an attempt to establish a support network. We all benefit from having understanding, empathetic, helpful contacts. We think Gwen's idea is excellent. Are there readers in other outlying areas who would like to establish such a support network? Let us know. We'll publish your requests in future issue of the Quarterly.

The Toronto "Basic Rotation Cookbook"

The Toronto Branch is publishing a cookbook which can be used on a 4, 8, 12 day rotation (cf p.3). If you would like a copy, please see page 43 for the order form.

President's Report

Sometimes our best thoughts and ideas are crushed because of ecological illness. Between the last issue of the Quarterly and today, I have had but a couple of weeks of productivity. I am not, therefore, able to report to you that we have exceeded the 1000 member mark.

What I can report to you is increasing press coverage of ecological illness. The Toronto Daily Star recently carried two different items which generated a considerable response from the public. Numerous information packages were sent out and many new members joined the Toronto branch.

The Quarterly is organized by people with ecological illness. Any help that you can give is appreciated. "How can I help?" you say. If you notice an article, have an urge to write a poem, or tell your story, then you can help. Send the information to:

The Editor, H.E.F. of Canada Quarterly
465 No. 8 Highway,
Dundas, Ontario, Canada.
L9H 4V9

Happiness comes when we help each other.

To all of you I wish the best of health. The next issue of the Quarterly will contain a report about the Society for Clinical Ecology Seminar in Broodmoor, Colorado.

Ecologically Yours,

Darlene Koski,
President H.E.F. of Canada

Branches

Human Ecology Foundation (Hamilton)
P.O. Box 4546, Station D,
Hamilton, Ontario, Canada.
L8V 4S7

Human Ecology Foundation (Kitchener)
11 Drew Avenue,
Cambridge, Ontario, Canada.
N1S 3R2

Human Ecology Foundation (Ottawa)
P.O. Box 11428, Station H,
Nepean, Ontario, Canada.
K2H 7V1

Human Ecology Foundation (Toronto)
65 Dolly Varden Blvd.,
Scarborough, Ontario, Canada.
M1H 2K2

BRANCH REPORTS

Ottawa

- (1) The Ottawa branch has held two executive meetings in the last quarter.
- (2) Until now, the main source of revenue has been food supplies. The executive has now agreed that income will also be generated through the sale of ecological supplies.
- (3) One of the executive members has prepared a "Doctor's Kit" to be placed in four doctor's offices.
- (4) The annual business meeting on April 27th was followed by a well-attended general meeting featuring Ken and Debbie Rubin who discussed the benefits and techniques of organic gardening.
- (5) On June 1st, allergy technicians Hettie Stevens and Skip Walker explained the different methods of allergy testing and treatment.
- (6) The Ottawa branch of H.E.F. Canada was one of several groups represented on "Sun Day", held on June 19th. The Sun Day Organization is a group promoting non-polluting forms of energy.
- (7) The June 22nd meeting featured natural health counsellor Louise Shannon who discussed the natural health therapies which may benefit those individuals with environmental illness.
- (8) A picnic for H.E.F. members and their families is planned for Sunday, July 24th.
- (9) The next general meeting is planned for September.

Faye Georganas

Toronto

We are emphasizing the expansion of our newsletter, "Inkblots". Some of the regular features now include: "Kid-ecology", "What's Cookin'", "Book Nook", "Mailbag", and "Doc Talk". Members send in information for these departments. Involvement is growing.

Our BASIC ROTATION DIET COOKBOOK will be available through each branch or head office in mid-October. This book contains approximately 200 recipes which are guaranteed to provide some humour, hints and healthy eating. This is a simple cookbook with easy to locate recipes for each day of the rotation. It can be used as a 4, 8, or even 12 day rotation depending on the number of the safe foods for each individual. Reserve your copy now and pay only \$6.00. After October 15th the cost will be \$8.00 a copy.

In June, a panel discussion provided the members with a much needed opportunity to ask questions and learn more about living a healthier lifestyle within the limitations of our various sensitivities. Members of the panel included a dentist, a counsellor, a lifestyle resource person, a professional engineer and three clinical ecologists.

Darlene Koski

Kitchener

There are currently 142 members in our branch.

We have had contact with a member of H.U.F.F.I. (Home-owners of Urea-foam formaldehyde Insulation). The wife of one of the organizers is reacting badly to chemicals. As a result of that meeting in May, members of H.U.F.F.I. have been encouraged to consider joining H.E.F.

Our September meeting (September 20th in St. Paul's, Preston) will address the problems sensitive children have within the school system. Al Goebel and Don Cave from the Waterloo County School Board have agreed to speak.

On November 19th, Dr. Irvine Korman will speak to us about "Candida ALBICANS". This lecture will be held in St. Paul's United Church Auditorium, King St., Preston at 8:00 PM.

That same night we will draw the winning tickets for our raffle of a \$300.00 oil painting and five other prizes. We are fortunate that one of our members, Colleen J. Crowe, is an artist and that she has donated the painting to our branch. The proceeds of the draw are to be used to purchase educational materials pertaining to environmental illness and sensitivity for we felt that the general public will become aware of environmental illness only through reading and public lectures.

Counselling people about the Rotary Diet appears to be a very real need. Dr. Bastedo has obtained permission to use the Health Unit for this purpose and we hope to organize a series of lectures on the subject in the fall. This is where we intend to use our DRAW MONEY.

We are planning to have an Organic Gardening Program, perhaps in February.

Since an organization can only be strong if members are involved, we are looking for volunteers to help out: to assist in explaining H.E.F., the Rotary Diet, and to work as a BUDDY where daily advice and support is needed.

Anne Schreiter

Biographical Sketches

Anne Schreiter

Anne was born and educated in Waterloo, Ontario, earned a B.A. from Waterloo College (now Wilfrid Laurier University) and worked in the dividend department of the "Dominion Life".

In 1950 Anne married Bill Schreiter and they are now the parents of eight children - several of them severely sensitive. As a result of one son's problems in particular, Anne became involved in the Waterloo Regional Lung Association's Family Asthma Clinic and from contacts made there became aware of environmental illness.

Anne is currently president of the Kitchener branch of H.E.F. Canada, chairperson of the Rehabilitation Committee of the Waterloo Regional Lung Association, works extensively in her church and has campaigned for cystic fibrosis, the cancer drive and the heart fund.

Lynda Brooks

Lynda is the president of the Ottawa Branch of H.E.F. of Canada. She is a registered nurse, the mother of a boy, 14, and a girl, 12. She is active in community groups, athletics, church and school. And she has allergies - which began to become much more severe in 1981.

Lynda is currently doing considerable work on rotation diets with members of the Ottawa branch.

Darlene Koski

Darlene is the new president of H.E.F. Canada as well as president of the Toronto branch of H.E.F. Canada.

Darlene was born and educated in St. Catharines and since 1961 has lived in Scarborough, Ontario.

Darlene is a severely allergic teacher, and the mother of a severely allergic daughter. She reports, "Thank goodness for clinical ecologists. Our lives have been turned around with the treatment and a change of life style."

Darlene's community involvement has always revolved around education, and as president of H.E.F. Canada, she will be emphasizing education for a cleaner environment.

Darlene, her husband, Ed, and her daughter, Brenda, hope to move to the country in the near future where they will build an ecologically sound house and begin, "breathing some clean air".

Prepare Your Hospital Staff:

A Checklist For The Chemically Sensitive Patient

Submitted by: Marna L. Slocum

Introduction

The chemically sensitive patient presents numerous logistical problems for housekeeping, food services, and medical staff personnel. No two chemically sensitive patients are alike and what one can tolerate another cannot. As a general rule, the patient should not be exposed to any chemicals or chemical based materials such as plastics or anything with an odor unless it has been approved by the attending physician.

Housekeeping

- 1) Where possible remove or replace with glass or metal all plastic articles in the room:
 - (a) wastebasket
 - (b) plastic water glass
 - (c) water container
 - (d) utility tray
 - (e) shower curtain
- 2) Replace toilet supplies:
 - (a) scented toilet tissue
 - (b) colored Kleenex
 - (c) soap
 - (d) all aerospray cans
- 3) Keep door closed and place sign on door: "CHEMICALLY SENSITIVE PATIENT, SEE NURSE PRIOR TO ENTERING".
- 4) Insure drapes are clean but not odorous.
- 5) Cotton sheets and towels will be supplied by the patient.
- 6) Dust room with wet rag.
- 7) Post "No Smoking" sign.
- 8) Clean floor using only plain water.
- 9) Clean air conditioning grating.
- 10) No chemicals in toilet bowl.
- 11) Patient will supply own night garments.
- 12) Check with Allergy Department for room air-filtering unit.

Food Services

- 1) Each meal is to be planned individually by the dietician in consultation with the patient or her physician.
- 2) No substitutions whatsoever without dietician's or patient's approval.
- 3) No plastic eating utensils.
- 4) Nurse is to examine tray before delivery.

Medical Service Personnel

- 1) All visitors and deliveries are to be cleared at the nurses' station (flowers included).
- 2) Hairsprays, deodorants, after-shave lotions, or smoke odors on personnel may cause problems.
- 3) Use a glass thermometer.

Travel Note: Victoria Hospitality Club

Bed & Breakfast: Victoria, British Columbia Style

Have you ever considered vacationing in Victoria, British Columbia in local host houses? Bed and Breakfast is fast becoming the way to go. Rates vary between \$16-\$25 for single accommodation, \$18-\$35 double, private bath a bit extra. Special arrangements such as long-term stays, off-season discounts and home exchanges are also offered. You just can't beat what you get for your money in these private homes and apartments.

Victoria Hospitality Club can service your needs for a small membership fee of \$2 per individual, \$3 per family. The club acts as a liaison between Victoria hosts matching host hospitality with guest requirements. We ask guests to complete a membership questionnaire and to provide a reference. All of our private accommodation is personally visited and must comply with standards of comfort much the same as those for hotels and motels. The club prides itself on friendly, personal service.

The Victoria Hospitality Club is unique. It is a non-profit organization funded by the federal government through a New Horizons grant - service to seniors. By offering "B & B" the club promotes hospitality and goodwill between people of all age groups. The club registers only responsible people wishing to be neighborly.

To contact the club write:

Victoria Hospitality Club
1240 Gladstone Ave.,
Victoria, B.C.

Telephone: (604) 384-8033 or 381-2312

IS IT PSYCHOSOMATIC OR COULD IT BE YOUR DENTURES???

Muriel Hall

For those who have never had such an experience, the incidents related herein may seem bizarre and, at the very least, the ravings of a lunatic. For those who have gone through similar 'neurosis', perhaps many a familiar chord will be struck.

We are all aware of the ridiculous battle being waged between orthodox allergists on the one hand, backed by 95% of medical people, and Clinical Ecologists on the other hand, backed by thousands of victims who have learned the hard way - from first hand experience. Whatever happened to medicine that it relies solely on scientific evidence and so little on common sense, that it completely ignores the total community in which diseases strike and run their course?

Whether chemical susceptibility is exactly allergic in nature or not, whether one is laid low by an allergic reaction or by an adverse reaction makes no difference. Either way, the end results are pretty debilitating. Following a lifetime of allergic reactions - yes, all the accepted and approved varieties: eye, nose, throat and chest problems, skin rashes - there is no doubt in my mind that allergies, the 20th Century disease, are very real, and of common origin. With minor allergies one can easily control reactions. With severe chemical allergies, especially without prior knowledge of the cause, there is little one can do.

My illness began in January 1978 and produced multiple weird and baffling symptoms, each one a bit more debilitating, each one equally puzzling to the endless stream of general practitioners and specialists of every imaginable variety. All test results proved negative. After surgery in October 1980, and after having lost 45 pounds, I was seriously ill. At times I was unable to stand and I walked only with the aid of 2 canes. My face took on a transparent, ghost-like appearance, my body was so weak it was an effort just to lift an arm. I was constantly in pain: migraines, abdominal pain, muscle pain, tissue, bone and joint pain. I experienced, as well, many, many other symptoms. Despite visible deterioration, I was declared in excellent physical condition, completely healthy - except for my "psychosomatic" condition.

After many 'wasted hours' and equally many 'wasted dollars', it was a relief finally to be correctly diagnosed, "Chemically Susceptible, acutely and chronically ill, as a result of toxic chemical exposures". But, reactions were so severe, triggering agents so numerous, symptoms so overlapping, and some agents so well hidden, that recovery was a slow, slow process. Appropriate therapy was undertaken along with removal of all possible offending agents. Wood furnace and creosote soaked chimney were replaced by electric heating.

Removal of corroded copper vent pipes from plumbing fixtures stopped methane fumes from entering the home. Removal and replacement of floors and walls helped reduce offending odours. An all-out war was waged on mould. All of this combined with a 7-day rotating organic diet should have been successful. It was to a degree, but not entirely. Despite all efforts, even a recluse-like existence, severe reactions continued. With each major adjustment came renewed hope - but not much else.

Repeatedly we searched and searched for yet another undetected chemical exposure, for my body gave every indication of a toxic overload. Among other things, I had no saliva, little or no hydrochloric acid (which resulted in malabsorption of foods), and malfunctioning thyroid, liver and gall bladder systems. At the same time, pain, ever present in the face, cheek bones, sinuses and ears was unbearable. In early September 1982, I removed my bottom dentures. By morning there was a big improvement. Out came the upper denture as well and both are resting to this day in their place of honour in a glass jar atop the filing cabinet. The initial embarrassment of 'gumming it' was almost too much to bear. Back into the mouth went the teeth at the slightest hint of visitors, and back also came multiple symptoms. Prolonged wearing caused increasingly severe reactions, lasting for 3 to 4 days. This particular set of dentures were new in November 1977, just prior to the onset of my present illness.

Next began the endless search for suitable material for new dentures. Letters were written to clinical ecologists both in Canada and the United States. Dentists, Denturists and Universities were consulted. Ideally, porcelain would have been the most inert substance, but it was not available. Old-fashioned vulcanite was considered, but it too was not available. One sample from the U.S. appeared satisfactory, but the supplier failed to reply. Many noted that even should I find suitable material, my body would most likely build up an allergic reaction to that material eventually. It was suggested that perhaps soaking the denture in baking soda solution whenever it was out of the mouth, would help to neutralize the chemical gassing off. Somewhere along the way, in similar circumstances, an ecologist advised that he had knowledge of patients who had boiled their dentures, thus removing toxic materials and making them more tolerable, for short wearing. Out came the saucepan and the dentures were gently boiled for a day. True, a brown scum formed on the dentures, on the inside of the saucepan, and on top of the water. When my husband inquired, "What's for lunch?", I jokingly directed him to "Denture Soup".

There remained only one problem: the plastic dentures warped so badly out of shape, they would no longer fit. This discovery was met with mixed feelings: joy and blessed relief, because never again would they have to be worn, and humiliation as I realized I would have to face people looking the age of Grandma Moses or wearing a face mask, even if it were not necessary for protection from toxic fumes. Among the trials of living without dentures were getting used to soft cooking,

using the blender and food chopper and eliminating some food items. Among the benefits were relief from pain, a return of saliva, increased hydrochloric acid production with better absorption, weight gain, improved thyroid, liver, and gall bladder function. Reactions still occur with chemical exposures, but causes are now more readily identified and, therefore, readily prevented.

After months of searching, a suitable substance for new teeth was located. Because of distance and my severe reactions to traffic fumes, a local denturist was chosen. Although previously quite unaware of severe allergies, he has been most helpful, co-operative and understanding. I wore a face mask at the first appointment, and on leaving the office, arthritic-like pains gripped the left wrist and forearm. The next day along came a delayed, full-fledged reaction with nausea, intestinal disturbances and cerebral manifestations. During the second visit, I again wore the mask and used oxygen with great care. An open flame in the office had first to be extinguished.

Delayed reaction wiped me out for 3 days and at this point I was fearful that I might never be able to continue the fittings. Following a lengthy breather and armed with several neutralizing drops - one for the office air which was loaded with all kinds of chemicals including propane, one for the mint-flavoured hardening material used for first impressions, and a combination drop of several waxes and plastics used in fittings (which, incidentally, were all petroleum derivatives) we pressed on. One thing helped. Following each fitting I carefully rinsed my mouth, first, with a mixture of baking soda and spring water and then, with pure spring water.

To further add to the chemical load, road resurfacing was under way in the immediate area of the dental office. Despite all exposures, however, late in the evening I could not help thinking, "How fortunate, we have this touchy situation under control".

By 3 a.m. I awoke in severe distress, with saliva pouring from my mouth, a sign which brought me upright and running for the washroom at a pace even Bannister (of "minute mile" fame) would envy. As my body fought desperately to rid itself of toxins, my brain whirled faster and faster, "Neutralizing drops? In the frig. How does one get successfully from bathroom to frig? Impossible. Baking soda? In the kitchen. Also out of reach. Maybe Charlie can help me."

"Charlie! Help! Charlie! Help!"

"I can't black out now."

"Help!"

"This is hopeless!"

"Forget it."

"Oxygen. Unfortunately, accidentally left in the van. And even if the distance could be managed (which it certainly can't with me in this condition), the thought of tripping over

a racoon or porcupine rules out that therapy. This must be what they call projectile vomiting. Where is that chamber pail? In the spare bedroom. It might as well be 10 miles or 10 kilometers or 10 metres - it's out of the question."

With feelings of nostalgia I recalled similar childhood incidents with the good old two-holer, out back. At least both ends were covered simultaneously. Here I was, in this mess, and a prisoner perhaps for the rest of the night. I was dimly conscious of body weakness and excessive perspiration; the old heart was pounding like a trip hammer, with an erratic beat, and a throbbing echo just above the navel.

"For heaven's sake don't let any medical person see you now or you will be subjected to at least 4 months or more of poking and prodding and testing in search of heart disease. Heart disease, any heart would be at dis-ease under this assault. Just keep on pumping! Quick, cover the bottom end!"

Only half way to the kitchen, I was forced to double back on the double. Much later, back again in the kitchen, with the frig door open, the aroma of fresh cabbage struck me with a wave of nausea! Back again at the frig, "This time hold your breath. What was I looking for in the frig anyway? Return to the spot you came from. Oh, yes, drops. Drops. Drops. Hold your breath and grab them quickly. Now you know, according to Collins Williams, there is no scientific basis for the success of this treatment, but thank God for drops. Get the baking soda down, too, and try to hold it."

Some undetermined time later, much weaker, and exhausted, I surveyed the situation. There was my old familiar friend, a severe cramp and painful spot behind the ball of the left foot, as if the arch were broken. "Get busy and apply pressure and massage, even if the pain nearly kills you."

As awareness returned, it was hard to know which part to cradle first, the left wrist and forearm with arthritic-like pains or the right thumb, somehow mysteriously red, painful and swollen to more than twice its normal size or the unbearable pain and pressure on the top of my head.

"Yes, the spot is hot and painful. Relax and begin self-administered acupressure."

With digestive upsets somewhat under control, I hurried to bed before sleep overtook me right there on the john. At least I had been spared hip and back pain. Thank goodness!

At 6:30 a.m., I was abruptly awakened by Charlie's collision with the chamber pail and basin which had been strategically stationed at the half way point between bed and barfroom. There followed expressions of sympathy, 'he wasn't aware', 'would I like him to feed the chickens?' Being not too certain whether I could even raise my head off the pillow, let alone face 100 hungry 12-week-old roosters, I gladly accepted his generous offer, and weakly called for "Oxygen".

At 8 a.m. I got up s-l-o-w-l-y and gingerly, congratulated myself on reaching an upright position without complications,

struggled out to the deck to rest a bit. Then followed a trip by the frig, with breath held, for refuelling with drops, and another baking soda cocktail. Since there was limited reaction to kitchen odours, I felt convinced I would live, and bravely tried a shot of spring water. At this point I found a quiet spot out of direct sunlight to commune with nature, watch the birds and deer, and look at the weeds growing in the garden. Once in a while I jotted down a thought for future letters, but experience had proven I would be still suffering cerebral reactions and must not attempt any finished copy because of letter transpositions, misspelled words, wrong words, and incomplete sentences. Hand stitching was out, for later I would wonder who had made the mess of my work.

"The phone is ringing. Move slowly, but rush quickly ...5...6...7...hope they don't hang up...8...Put some life and enthusiasm into your voice."

"Hello! Yes, Marg. I'm just fine thanks,..."

Two days have passed since this most recent "psychosomatic" occurrence and I'm still somewhat shaken. We are only half way through the fittings for these teeth and the only consolation is, should the material prove unsatisfactory, at least the molds will not need to be redone.

Who knows? Perhaps tomorrow medical Doctors will admit this illness does exist! Maybe dentists will come up with inert, non-reactive materials! Maybe optometrists will provide inert replacement materials for eye glass frames! Maybe research will be directed toward the immune system of the severely allergic! Maybe natural healing therapists will be better accepted and their therapies made more readily available to the public! Maybe health insurance will extend to include coverage of treatment for the thousands of people who find present orthodox drug-oriented care not only useless but harmful! Maybe medical people and other natural healing therapists will call a truce and begin working together, sharing knowledge and accepting successful methods of healing for the benefit of their patients - whether those methods are scientifically proven or not! Maybe ecological illness will strike in the right places!

Meanwhile, we can only pull ourselves together, press on, and keep hoping!

Question:

Has anyone found: (1) a tolerable contact lens?
Has anyone had any experience with the new silicon lens?
(2) a source for normal saline
without a preservative and in a glass container?

Please send your information to:

Marna L. Slocum
P.O. Box 26164,
Honolulu, Hawaii,
96825.

A Letter From Sherry A. Rogers, M.D., P.C.

Dear Friends,

Dr. Rea and I went to Connecticut a couple of weeks ago to visit with Dr. Marshall Mandell and Dr. Sid Baker. Dr. Baker is at the Gesell Institute of Human Development which is on the periphery of the Yale Campus. He has been particularly interested in the biochemistry of the cell membrane. I would like to share what we learned and then ask you for your help.

The cell membrane is what separates us from our environment. The cell membrane is a lipid structure. In other words, it is made up of a series of fatty acids. It's interesting that chemicals such as benzene and toluence, etc., are lipid soluble. In other words, as Dr. Rea suggests, they probably do their damage by penetrating through cell membranes easily. On the basis of urinary amino acid studies, Dr. Baker suggests that there is evidence for certain fatty acid deficiencies among people with a variety of disease states.

There are good reasons - other than genetic - for us to have deficiencies in certain fatty acids, for these deficient fatty acids are also the ones that are extracted from grains and oils in the process of making commercial food. When they are removed, the food does not get rancid as quickly and, therefore, the food can be stored for longer periods of time. In addition, the plethora of saturated fats in our diets act as blocking agents against our proper utilization of any small amounts of the missing fatty acids that we do ingest. As with everything, the individual variations among people are tremendous not only in the quantities and types of fatty acids that are deficient, but also in the scope of diseases which can become manifest as a result of this fatty acid deficiency.

The two pathways that have been worked out most clearly are the following:

Linoleic acid, which occurs naturally in corn oil, safflower oil, sunflower oil or soybean oil, goes through a step to become GLA (gamma linolenic acid). Some people have a block here and cannot make sufficient quantities of gamma linolenic acid. They can develop a variety of problems from eczema to asthma, hyperactivity, premenstrual syndrome, essential fatty acid syndrome (dry, bumpy skin on the outer arms, tremendous thirst, brittle nails and very dry hair), hypertension, hypercholesterolemia, thrombosis, auto-immune disease, vascular spasm and schizophrenia just to name a few. Without the conversion, they do not make enough prostaglandin-1 (PG-1), and instead make too much prostaglandin-2 (PG-2).

Excesses of PG-2 can cause arthritis, diabetes, cancer, multiple sclerosis, food allergy, depression, angina, asthma Crohn's disease, psoriasis, thrombosis, PMS (premenstrual syndrome) and schizophrenia as well.

Ingestion of primrose oil will bypass this defect. However, if the appropriate amount of zinc, iron, selenium, vitamin C, vitamin E and biotin are not present, the primrose oil cannot go on to form the appropriate amounts of prostaglandin E-1.

The second pathway that has also been worked out is that of alpha-linolenic acid. Deficiencies of this pathway can cause neuropathy, impaired learning, dandruff, acne, schizophrenia, thrombosis, hypertriglyceridemia, depression, inflammatory diseases and defective control of PG-2 as well. Linolenic acid is not very prevalent in the diet, but is found in flax seed (linseed oil), walnut, chestnut, beechnut, and soybean. With the aid of the co-factor B-6, it is converted to eicosapentanoic acid (EPA). This is found in cod liver oil, salmon, mackerel, tuna, herring and sardines.

Much of this knowledge is theoretical, but it makes very good sense and since there have been no adverse reactions seen from ingestion of primrose oil or linseed oil, it behooves each person who suspects he/she has a deficiency of either one to try to evaluate one or two months of both substances or either one alone to see if building the health of the cell membrane can gradually increase its integrity and decrease his/her multiple hypersensitivities.

Primrose oil can often be bogus. Usually the forms made in England are not. One that has been assayed spectrophotometrically and found to be true GLA is called "Efamol". It comes in 500 mg capsules and is available at health food stores (GNC) and the dose is one or two capsules three times a day.

Linseed oil should be purchased as Hain's pure cold pressed linseed oil available at Deer Valley Farms, Guilford, NY, or at health food stores. The dose is one-half teaspoon to one tablespoon once or twice a day.

It is also interesting to note that either oil can be rubbed on and allowed to penetrate rather than having to be ingested. You can rub it on anywhere and allow it to absorb.

At the same time that one is evaluating these oils to see if they promote resistance to environmental agents, it would be a good idea to take a multi-purpose vitamin/mineral preparation such as Bronson's Insurance Formula (La Canada, Calif. 91001), so that the selenium, zinc, magnesium, C and B-6 are all present as well as the many other vitamins and minerals that are necessary for a synergistic operation. Don't forget that vitamins A, C, and E are the scavengers or the ones that supply missing ions so that chemicals can be disposed of.

One of the major problems is everyone's individual deficiencies and hypersensitivity levels as well as their variations in dose requirement which may even change with time and antigenic load. Some people will require up to 200 mg of B-6 to provide the necessary co-factor for conversion of the fatty acids.

B-6 is lost when we cook meat. It is prevalent in bananas. B6
Magnesium is required by some in doses up to 500 mg a day,

E, up to 600 international units a day and B-3, anywhere from 900-4000 mg per day. Zinc is high in oysters.

Passwater writes in Evening Primrose Oil (Keats Publ., Inc., New Canaan, CT \$1.45), that this regimen, however, along with the primrose oil, has cleared many cases of painful cystic mastopathy in 3-4 months.

As anyone with ecologic illness knows, there is no one thing that will improve a person's health. The more serious your illness is, the more eclectic your treatment must be. And so it seems to onlookers that you are trying so many things that you are just grabbing at straws.

But Passwater points out some interesting findings with the primrose oil. He has found that it has stimulated T-cells so that cancer cells in a test tube had reverted to normal once they were supplied with this missing fatty acid in their cell membrane metabolism.

As in cancer or ecologic illness, none of us is fortunate enough to have a singular defect. Our total state of nutrition must be dealt with. First there are the things which we need to avoid such as the poisons and chemicals in our food and air. Then there are the allergens. We can react to a host of chemicals, foods, pollens, molds, animals, dust, even our own hormones and humoral mediators and sometimes we have an imbalance in digestive enzymes or in our acid-alkali ratio or react to excesses of yeast and the damage it can create or to excesses of stress with it's deleterious effects on our T cells.

As well, there are individual deficiencies and special needs that are genetically determined for certain amino acids, vitamins, minerals and hormones and fatty acids so that, indeed, a person does not arrive at a state of good health until the total picture is one of comprehensive total allergic management and all of the biochemical-immunologic systems have been brought into a state of proper balance for that specific individual.

Dr. Rea and I would greatly appreciate if anyone who does evaluate these fatty acid supplements, would write out what your symptoms were before you took it, the dose and vitamin/mineral combinations that you took and what symptoms you think it improved. This would be extremely helpful. We would like to try to compile all of this data so that we can get more information on the biochemistry of ecologically ill people so that we can figure out better ways to help them build their resistance toward environmental agents. You could send this information to my office. Please mark the envelope:

Fatty Acid Metabolism Study,
c/o Sherry A. Rogers, M.D., P.C.,
2800 W. Genesee Street,
Syracuse, NY., 13219.

I cannot answer any letters personally, but if you include a self-addressed, stamped envelope and short questions that could be answered "yes" or "no", I certainly will do my best to

attempt to help you through any questions you may have about this problem. The larger the study is, the more pertinent the information will be. If it turns out that this is an important aspect of many peoples' environmentally-induced symptoms, then more research will be geared along these lines.

One thing that you must bear in mind is that these changes will not occur abruptly. They will take 2-3 months to come about because we are attempting to heal the body and replace chemicals that were deficient so that different biochemical pathways can be followed in the future. We are hoping the oils will clear resistant conditions and improve the integrity of the cell membrane (including the T-cell!) making it more resistant to chemicals. Even if you have negative results, it is very important that everyone who evaluates these oils gives us their feedback. In this way we can attempt to derive the greatest amount of information in a short period of time so that we can get on with the next steps in our quest to figure out ecologic illness. Thank you, one and all.

Sherry A. Rogers, M.D.
Diplomate American Board of Family Practice
Fellow American College of Allergists
Fellow The American Assoc. for Clinical
Immunology and Allergy

Note: NORTHERN ONTARIO ARE YOU OUT THERE?

I am living in a small town, Capreol, twenty miles north of Sudbury. I am wondering who else in Northern Ontario is battling with ecological illness. I think it is time we started finding each other.

Even if you are well established and do not feel the need for support, there may be others living not too far away whom you could help. I am concerned about those just being diagnosed, coming back up here just not knowing where or how to begin their new life.

Please send me your name and address and perhaps tell me a little about how you are coping with your illness, your sources of food and clothing, etc.

I would be glad to keep a list of names and to try to help people contact each other.

Gwen Lawrence
Box 135,
Capreol, Ontario,
POM 1H0
(705) 858-1912

Major Study Underway on Indoor Pollution and Chemical Susceptibility

August 23, 1983

Members of the
Human Ecology Foundation of Canada,
c/o Human Ecology Foundation (Quarterly),
465 Highway 8,
Dundas, Ontario,
L9H 4V9

Dear Friends;

My consulting firm, Small and Associates, has recently been asked by Canada Mortgage and Housing Corporation, a Federal Crown Corporation, to conduct studies on indoor air pollution and its effects on Canadians.

During the course of the next year, Barbara and I will be gathering information about the environmental problems people have encountered in their homes. We are interested in finding out three basic things:

What caused the problem?

What ill effects did you experience as a result?

What have you done to correct the problem, and has it succeeded?

We would like to conduct some in-depth interviews with people who are willing to discuss these things. Your identity will be protected. If there is sufficient response we may also circulate a full questionnaire with the next Quarterly issue.

CMHC is serious about understanding and continuing to improve indoor air quality, but we must gather and present detailed information in order to document the problem properly at this stage.

Those of you who are interested in contributing information in the early stages of this study are invited to call us collect at (416) 294-3531. Please just mention 'Indoor Pollution Survey' and leave us your name, address and phone number, so that we can arrange a mutually convenient time to talk once our questionnaires are in order. Letters or cards with the same information are also welcome.

Write to: Indoor Air Pollution Survey
 c/o Small and Associates,
 R.R. 1,
 Goodwood, Ontario,
 LOC 1A0

A DOCTOR'S EXPERIENCE - INSIDE AN ECOLOGY UNIT

*The following article was extracted from a report by Phyllis L. Saifer, M.D., M.P.H., on her experience in an environmental unit. Saifer practices clinical ecology in Berkeley, California.

January 27, 1978

I have just come from a mind-boggling experience which I thought might be of some interest to you and I would like to share it. In November, 1977, my health had continued to deteriorate so that symptoms of fatigue, depression, generalized itching, muscle aching, nasal congestion, generalized edema (swelling), blurred vision and mental dullness, anxiety, photophobia (light sensitivity), headache, irritability, bellyaches, constipation, joint pain, chills, cold hands and feet, etc., had become a daily phenomenon.

I was at the point of thinking that I would have to stop working. What brought this home was an incident that occurred in my office one afternoon. I had been taking a patient history and looked down to find that a half hour later I had written nothing.

At the SCE (Society for Clinical Ecology) meeting in October, I met Dr. William J. Rea, vascular surgeon and SCE president. He discussed his environmental unit in Dallas and I decided that I could no longer afford to put off the diagnostic and therapeutic visit to an ecology unit for the recommended three weeks workup. For two years I had convinced myself that "I wasn't that sick", but now I knew better.

I went to Dallas in all cotton clothing and entered the unit sick, depressed, frightened at the impending ordeal and quite certain that it would be impossible to maintain the strictly disciplined regimen when I left the unit. As usual, I was anesthetized - numbed and mentally dulled - by the airport pollution and airplane fumes. An exposure to perfume at the admissions desk left me crying for the next 18 hours. I think that a permanently plugged up nose is preferable to cerebral allergy.

After a detailed orientation by the nurse, of which I heard not a word, I collapsed into bed to begin a five-day fast with the concomitant withdrawal symptoms. There was spring water to take along with milk of magnesia, bi-salts (sodium bicarbonate and potassium bicarbonate on a 3:2 ratio), and tri-salts (sodium and potassium bicarbonate and calcium carbonate 3:2:1). Then there were spring water enemas and rectal drips of 25 mg NaHCO₃ in 100 cc of .9 NaCl. There were other atomic bomb concoctions for recalcitrant bowels including Epsom salts and castor oil. The castor oil caused swelling and a headache.

The first night, after 30 hours of fasting, I fainted. After that I did less spectacular things such as staying in bed with muscle aches, chills, exhaustion, 80/40 blood pressure instead of my normal 100/80, a slow 64 beats per minute pulse and a temperature of 96.4 - pretty close to dead. I felt like a ghoul.

The vampires arrived on the third day to draw 16 tubes of blood for the usual lab work plus all the components of complement - T cells, B cells, immunoglobulins, etc.

By the fourth day, the craving for food passed and the weakness, dizziness, shortness of breath and palpitations were abating. Pulse was 66-68. Blood pressure reached an "all time" high of 90/60 and temperature was 96.6.

Eye-Opening Rounds

I started going on twice-a-day rounds with Dr. Rea and couldn't believe what I saw. He had four cardiac patients being fasted and challenged. One man, an undertaker, had had four bypass jumps. The other man and two women had recurrent angina, shortness of breath and arrhythmias along with headache, narcolepsy and fainting spells. During my stay I saw the undertaker become a pleasant, sympathetic man instead of the irritable person I had first met. He developed serious PVCs (irregular heart rate) on ingestion of beef, apples, and, of course, exposure to formaldehyde. He seemed to be entirely undisturbed by other organic foods, chemicals and commercial foods. The other three reacted to multiple foods and chemicals.

There were two steroid-dependent asthmatics. Their steroids were stopped on entering the unit, and they were dreadfully sensitive to many things.

Two women had chronic headache. One had migraine and hemiplegia (right-sided weakness). She developed headaches and a 24-hour hemiplegia on challenge with organically grown carrots. The other was a chemistry teacher with chronic sinusitis, weakness, depression and fainting spells. Naturally she reacted to all chemicals including the telephone (even with the pesticide strip in the handle removed), print, chemically-contaminated foods, etc.

A lady had nerve deafness which seemed to worsen every time she ate wheat. Another woman had recurrent phlebitis. Others suffered muscle pain, nausea, colitis, angioedema, abdominal bloating and extreme weight fluctuations. A 13-year-old girl had been bedridden for several years and looked as if she had marasmus. After eight days of fasting, she walked leaning on her father. She, too, had multiple sensitivities to food and chemicals. Her mother was a patient at the same time, for angioedema (swelling).

Controlled Environment

Let me describe the controlled environment. The cotton-uniformed nurses wear no scent of any sort. Rooms have porcelain walls and terrazzo floors. Beds and other furniture are steel and stripped wood. Linens are cotton, specially washed in Ivory and rinsed with baking soda. Eventually all telephones will be ceramic and all lighting incandescent and glass. Cooking is still done over gas and the water in the bathrooms still is chlorinated, but these are due for correction. Television sets are to be enclosed in glass. Oxygen masks are porcelain instead of vinyl.

The first testing I did was to discover that when we turned on the fan-driven electric heater in our room, I got a bad taste in my mouth and developed mental dullness. The same thing happened with a low temperature water heater and with a bituminous coal charcoal air filter. Thereafter, I used lots of blankets and sweaters and had an unpopular cold room.

The next test was to find a water. Local spring waters caused a giddy high for six minutes. That was followed by a compelling sleepiness which lasted several hours even with the help of a tri-salts and oxygen. Filtered water turned out to be quite tolerable and then I was ready for the big test with the most expensive and complicating implications.

A Formidable Challenge

Three of us were wheeled into the hospital kitchen reserved for use by the ecology unit. Four gas burners were going full force. We sat there in wheelchairs under the supervision of a research assistant waiting to see what would be the outcome of our "gassing". The young woman with cardiac arrhythmia lasted three minutes before developing chest pain. She spent the night on oxygen and the monitor and never did get out of bed the next day. The young asthmatic got giddy, loud and thoroughly drunk. She, too, spent the night on oxygen and inhalation therapy. I became belligerent in five minutes and developed numbness in my hands and feet and profound muscle weakness over the next 20 minutes when I decided that I was getting sick and should get out.

Back in my room, my mind was remarkably clear. I felt alert. I was entering the stimulatory phase of the reaction. During the night I was seized with muscle pain, chills, and nightmares. In the morning they took blood for complement studies. It had gone from 80 on entering to 60. I was dreadfully edematous and had gained two pounds in spite of fasting and drinking only water.

I spent the day in bed totally exhausted, just as I had been when I decided to enter the unit. That meant our gas stove, gas water heater and gas heat would have to go. Dr. Rea said it could take up to two years to have all the remains of natural gas leave the house.

The Chlorine "High"

The next discovery lay in the bathroom. After a bath with unscented shampoo and soap and thiosulfate crystals to release the chlorine from the bath water, I enjoyed a lovely high for two hours before falling deeply asleep for another two hours. I repeated this test three times and finally decided to limit myself to sponge-bathing and those people who could stand me. I had known chlorine bothered me, but had never observed the sequence of the reaction with the stimulatory and withdrawal or depressive phase following.

I was getting pretty depressed about the news I was going to have to give my husband, but despite all the work and expense to be faced I was beginning to feel a little stronger, less upset, less anxious, more positive and more determined to do whatever was necessary to feel good.

After five days of fasting and cleaning out, I was free enough of symptoms to eat. With the help of one of Dr. Rea's former patients and present assistants, I made up a rotary diet consisting of food I had eaten never or rarely or to which I thought I had minimal reactions. All the foods were pesticide free and I was to eat one large portion of food at each meal and observe reactions. If a reaction occurred I was to take tri-salts, milk of magnesia and an enema. I chose yams, buffalo, venison, rabbit, squab, Jerusalem artichokes, papaya, lentils and some more familiar vegetables and fruits.

Guanaco Anyone?

Guanaco went over fairly well. This is a very stupid Latin-American animal related to the camel, vicuna and llama. The first patty went down OK. On the second, my nose began to run. Goat meat was fine. Rabbit, which I had eaten once in my life, produced a major reaction. In all, I had no reaction to blueberries, cashews, shrimp and lentils. The worst reaction was pork. I was supposed to get wild boar but they were out of it. I was violently nauseated and slightly crazy all night. I had terrible nightmares. My IgG was down the next morning and so were my T cells. Blood pressure was down again. My MIF went bananas.

Other foods in the unit freezer included squirrel, beaver, bear and lion. Being the gourmand that I am, I had already tried all their exotic fruits and vegetables and had left myself very little to eat since I seemed to react to everything that had ever gone into my mouth. Some speculate that something is wrong with the pancreas. Me, I think I have slothful T cells. They don't do their work.

The idea with the rotary diet was to find 16 tolerated organic foods and then test the same foods grown commercially with chemical fertilizers and pesticides. There was no way I was going to find 16 foods, so we took two of my least reactive foods - apricots and yams. I had canned, dietetic (packed in water) apricots and within five minutes of the last bite I went into a stuporous sleep. Yams were much worse in their contaminated form inducing severe muscle ache, chilling,

fatigue and depression. I was supposed to have four more contaminated meals, but I yelled "uncle" and swore to eat only organic foods. I didn't need more convincing.

Some patients tolerated most organic foods and none of the contaminated. The undertaker had no trouble with chemicalized foods but would forever avoid beef and apples in any form. The most sensitive patients were universally food and chemical intolerant.

The next ordeal was the testing of chemicals - chlorine, insecticide, phenol, grain alcohol, formaldehyde and normal saline in a specially constructed glass booth. Tiny amounts of the chemicals were pumped into the booth.

Insecticide produced hives and a stimulatory reaction within 15 minutes. Five hours later I had a terrific craving for sweets - a reaction I have noticed following exposure to some chemicals. Phenol caused flushing, sweating and itching followed by aching legs, fatigue, hunger and blurred vision. The next morning, I had a circumoral rash and was edematous with a definite weight gain.

The next test was ethyl alcohol from grains and this caused profound depression within 20 minutes.

I had no reaction to the placebo.

Chlorine (Clorox) provoked the usual sleepiness.

The tests were double-blinded but, of course, the odors were usually hard to miss.

Formaldehyde Knockout

Finally, we tested formaldehyde after which I itched, became hungry and craved See's chocolates, got a sore throat, felt slightly high and later became very sleepy. At that time my blood pressure was 80/40 (shocky).

I developed another funny symptom, saphenous vein tenderness, the beginnings of phlebitis. My admitting diagnosis was vasculitis. It was confirmed by the low complement levels. Serial eosinophil counts and complement levels were drawn during a nasty reaction to oranges and they followed the expected pattern.

During the remainder of my 18-day visit, I continued to test foods and to feel better and better despite repeated challenges and reactions and despite being premenstrual. When finally my period did arrive, I found my threshold lowered and I was reacting to the heat coming out of another patient's rooms and to one whiff of Estee Lauder perfume from the hallway. I thought such was the price of being female and called my husband in tears since I was going into that all too familiar depression.

"Dummy! Didn't you read the label on the Playtex tampons box?" he said. "They are rayon viscose and have polysorbate 20, a wetting agent in them. Get rid of them."

Twelve hours later, I was feeling much better. The next day, Joanna, a patient with cerebral allergy symptoms like mine, told me that she tolerated neither tampons nor sanitary pads made of chemically processed materials. For several years, she had been using non-absorbent cotton balls that had been allowed to air for at least a month. I finally found natural sponges to be tolerable.

I can't see any end to the complications caused by the post World War II era of chemical onslaught. I was born in the wrong century. I should have been born before gun powder and before oil lamps. I might have made it as a cave woman, maybe.

Dr. Rea's Office

While I was in the unit, my husband came for an educational visit. We went to Dr. Rea's office and to his home to see how a chemically sensitive physician manages his life. In his office, he had an air filtering system separate from all the other suites in the building. His freezer and copying machine were kept in an entirely separate office. Floors were terrazzo and walls porcelain, very tastefully done. The ceiling was also porcelain and lighting incandescent with glass covers. He had steel or glass desks and cane, steel and cotton cloth and wood chairs in cheerful colors.

Certainly there were no carpets. All books and papers were in filing cabinets. I have rarely seen any office look so neat. In his consultation room, he had a glass reading box so he could look at printed materials without being troubled by ink. All his food extracts were made in the office in saline from organically grown foods. These were kept frozen and the entire stock replaced every six weeks. I felt pretty comfortable in his office. Some fluorescent lights there bothered my eyes.

From the office, we went to his home in an entirely metal station wagon. All plastic had been stripped from the car. We sat on cotton-covered seats and I felt just fine.

Dr. Rea at Home

Dr. Rea's home was cozy and looked newly moved into - varnished, uncarpeted floors; little but new furniture. There was a bamboo living room set with horsehair-stuffed, cotton-covered cushions that made me itch. There were plants and books and it was pleasantly warm.

Kitchen and bathrooms were tiled and the kitchen had steel cabinets. The electric range, dishwasher, washer and dryer were closed off. What was unusual was the big steel commercial refrigerator in the pantry with the motor outside the house. The pantry was lined with shelves full of home-canned fruits and vegetables.

Dr. Rea had several fruit trees in his garden. The freezer was in an outbuilding as was the gas heating system. There was no gas and no motors anywhere inside the house. His next project is dechlorinating the water in the house. I believe they drank spring water.

Dr. Rea's wife and four children were also chemical, food and pollen sensitive. One child had asthma and was receiving transfer factor.

I survived the trip outside the unit fairly well. I intended to be careful for a day or two and then return home.

The airplane trip home took three days to wear off with the help of oxygen, tri-salts and rectal drip. My husband had sealed off my room with felt stripping around the doors and vent. The carpet was gone. The latex, "allergy proof", mattress covers were gone. Closets and drawers were emptied of vinyl and plastic clothes bags, etc.

My room felt great, but the rest of the house gave me leg aches, blurred vision and fatigue. The kitchen, with the gas stove, was unapproachable. Now with the stove out for three days I can go in for a few minutes. We're talking about solar heat.

My office isn't too bad. I was fairly careful in planning it. A few details still need work. Someday I hope to have an office as safe as Dr. Rea's. Trips to grocery and drug stores, Radio Shack and another physician's office have been premature, a mistake. I shall really have to remain a recluse awhile and be terribly dependent on other people for shopping.

Clothing stores I know to be my enemies because of formaldehyde. I will have to make do at work with one pair of "dress jeans" and several cotton shirts until I can replace my heavily synthetic "convenience" wardrobe. Everything is a size too big now that I've lost weight and water.

It feels so good. It's worth every bit of the effort. I only hope my family can tolerate the restrictions. Hopefully their health will benefit, too, because each one of them has a piece of my problem.

Sorry to have been so long-winded. But maybe all this will help someone else. The relief of having a diagnosis, answers and a therapeutic regimen that I know produces results makes the task ahead a pleasurable challenge. I couldn't face it without my husband's help, however. The technical problems are beyond my reach. The financial cost also is great. Dealing with chemical sensitivities in an age of plastic food, polluted air and synthetic clothing is not within the means of many people. The only real answer is to clean up our environment before we wipe ourselves out.

March, 1979

It is now 16 months later and I really am better. If I do have an allergic reaction, it lasts a shorter time and is less severe than before. All gas appliances are gone from the house, but the gas still lingers in the walls.

We got a Puro water filter on the entire water system. All chlorine is gone. It took months until the bathroom felt free of chlorine. We put in a solar water heater and got a tax credit.

Heating has been a major problem. We finally found two brands of electric heaters that, with the removal of some plastic parts, feel pretty good. Heating electrically is terribly expensive but we have no choice.

Organic foods are plentiful and after a few mistakes, accidents and improperly labeled foods, I know what is safe and eat very well. I settled on one meal a day, dinner, because I found that all foods induced at least mild fatigue even with my food treatments. I can't afford to be drowsy in the office so I eat dinner and may need to sleep an hour afterward, nothing worse.

Changes Improve Tolerance

My entire wardrobe is now cotton and woolen. All synthetics are gone. We use a microwave oven because the electric oven has some self-cleaning chemical on it that bothers me. We cook in glass and steel and store food in glass.

Our bedding is cotton and wool with a cotton pillow. The mattress is a problem I have not yet tackled.

Socializing is still a problem. I am not comfortable in gas-heated homes or buildings and usually have to leave fairly quickly, maybe in 30 minutes. Since I feel better, I invite people to my home in winter and go to their homes in summer when the heat is off. Crowds and public places usually make me sick, but I find my tolerance increasing over the months.

We just bought an air purifier that removes fumes from the air. It really works. I think it will be my salvation in the dry season when air pollution increases. I really become exhausted from air pollution and car exhaust.

Overall I am feeling remarkably cheerful because all the hard work, deprivations and restrictions have paid off. I must admit that I still dream of a magic pill or treatment and I've tried megavitamins - and soon found myself sensitive to all of them - and acupuncture. The latter seems to have helped a few symptoms. I must get more exercise. In the end, when I am good and follow my diet and chemical avoidances, I feel very, very good. When I am bad, I feel horrid.

December, 1981

I continue to improve steadily though it is four years later and I'm not "cured". Vitamins are now tolerable and seem to help certain symptoms. Transfer factor, an extract of human white blood cells and an immunostimulant, has been the greatest find. It keeps the T cells up and thus eliminates some of the prolonged reactions. It seems to help the feeling of drained exhaustion. Thyroid has helped a bit, too.

The extreme reactivity that I experienced after leaving Dr. Rea's unit lasted about 18 months, longer than in many of my patients. It is amazing that just with living carefully, improvement is constant. It almost suggests that many years' accumulation of toxins must be leaving my body.

Some of my patients have tried electronic homeopathy and others have used anti-monilia (Candida albicans) treatment and megavitamins to their definite benefit. Many are availing themselves of supportive psychotherapy to help cope with environmentally induced disease which unlike many handicaps is poorly understood and not visible in the way missing legs are.

Each year brings something new that helps a little. All of us are improving.

Courtesy of H.E.A.L. The Human Ecologist. Nos. 17 & 18 (June, 1982), pp. 3-8.

Note: An easy way to have an always ready ice bag (to reduce swelling and pain) is to fill an examining or rubber glove (surgical) with water, wrap in a thin old handkerchief, and freeze. Keep two dozen so that one will always be ready. It is the lightest weight ice bag I have found and no odor is detectable. They are a joy to use and not as expensive as a regular hard-to-dry odorous ice bag.

Marna L. Slocum,
Hawaii

Note: I thought I would have to endure straight hair for evermore, but, I have been very happy with the results of "Vita Perm". Available in some health food stores, this perm is excellent for people with chemical sensitivities. There is almost no odour!

Winona Macaulay

Reflections On Buying A Car

Ed Randegger

Buying a car can be dangerous for your pocketbook - and your health.

I suspect the perils of car buying force HEAL members to drive their old cars until they're ready for the junkyard. At least that was true when we went car-buying recently.

There is an advantage to this approach. You don't have to worry about negotiating a trade-in. Straight cash deals permit exact price comparisons. It eliminates some of that confusion.

And the assault of fumes from exhausts, paints, plastics, deodorants and all of the other outgassers that makes cars dangerous to health provides confusion enough. But that's only the beginning. There's also the cigarettes, polyesters and shaving lotions of the salesmen. Out in the lots, you'll sniff the industrial and traffic pollution of the area. And most car dealerships are not located in parks or low pollution areas.

When you finally sit down to talk deal, you'll find yourself in a showroom office amidst one of the thickest chemical stews you'll ever encounter as you sit down on a "hot seat" that would even scorch Frank Silver's aluminum foil chair protector.

Final Assault

Then the salesman launches his final assault on your sales resistance and your pocketbook. It all works toward forcing you to buy a machine that you may want, but can't afford, at a price that's too high.

The best way to determine how much markup is included in the list price of a machine is to go routinely through the negotiating process with a car that is more than you can afford - or at least more than you want to pay.

For example, we had been fascinated by a new four-wheel-drive, station wagon. We had priced the machine earlier at more than \$10,000 which we were told was the lowest price in the Seattle area for this "hot car". It was so hot at that time that the dealer didn't have one for us to take for a "wish test".

A month later another dealer had several similar machines on his lot. A salesman arrived quickly and we were shanghaied into a lengthy test drive. Then we were ushered into a showroom cubicle where the aroma of expensive color printed promotion pieces and tons of copy machine belches were added to our woes. We had already made it clear that we did not want to spend \$10,000+ for a vehicle - even one that didn't smell too bad because it was designed for rough use with less plastic and more metal and tough fabric.

Then the salesman began with "What would it take to get the Randegggers in that machine today?" The answer kept getting lower and lower until we reached \$8,000 or \$2,500 under the "list".

Later I determined at another dealer that the real price of the machine at which I'm sure there still would be substantial profit would be \$8,000 - even with added air conditioning. And air conditioning is essential for anyone who even suspects a sensitivity to unnatural and natural pollutants - which as you know can range from petroleum to sagebrush.

In our rounds of the dealers, we determined that regardless of the make and model there was a huge balloon of surplus profit in the listed price which could go to either the dealer or to us. That was true even of low-priced models. For example, we looked at a little car with a list price of about \$5,500. It was absolutely stripped with not even an am radio, let alone air conditioning. When I asked how much the car would be with an am-fm stereo, luggage rack and air conditioner, the salesman said it would be the same as without any of these amenities. Later we found that this was generally true. If you picked out a "stripped" model of a machine you might consider, you could check the list price and assume that you could have the machine plus a fancy radio, rack and air conditioning at the list, or often a lower price.

That's not the story we had been told earlier by our sophisticated car-buying friends who told us that import quotas had created a seller's market for small cars. Their theory obviously needs some work.

Smells, Smells Everywhere

Our tour of car dealers produced some other revelations in the area of smells as well. We learned that all new cars do not smell the same. The worst was a new super-high mileage Honda with the plastic covers still on the seats. The best was the four-wheel drive Toyota with the tough fabric seats. There was a wide range between those with more vinyl, smelling and burning our seats more, and those with less vinyl producing less discomfort. That makes sense, but the differences from model to model didn't always correspond. Those that looked like they should smell less didn't always pass the nose test.

While looking at the new cars, we also glanced at the used ones. This also produced some surprises. One older Volkswagon Rabbit appeared to be in excellent condition. But when we opened the door, we were overcome by the smell. On that lot, they sprayed every used car with "new car smell" to increase sales. We fled in terror back to the new cars. We thought that a "demonstrator" that had been around for a model year, or so, offered our best hope for getting a machine that had gone through the initial stages of outgassing. That had worked the last time we bought a car - in 1977 - and it might have worked again. But there were none available and we needed a machine immediately.

Our salvation turned out to be not a shiny new car without a blemish, but a shiny year-old car without a blemish that we purchased off a lot that dealt only in used cars. I can hear you gasp at the thought of going to "best deal around" almost-honest John's to buy a car that would barely make it out of the lot.

But we had been tipped by a friend that the best place to buy a good car at a fair price was a used car lot owned and operated by a rental car agency. We could have saved a lot of time and chemical headaches if we had decided to accept that advice at face value. Instead we tested this sane advice by touring all types of dealerships. The result of that safari through darkest "auto row" was this article and a batch of chemical headaches.

Avis and Hertz

We went to both the Avis and Hertz lots in the Seattle area and eventually selected a Toyota Starlet with air, etc., for about \$5,200 plus \$200 for "two years, or 24,000 miles" coverage of all of the vital and many of the not so vital parts. The car had been driven less than 20,000 miles and was completely reconditioned. It still smelled fairly new, but it had outgassed enough to make it tolerable.

There was no haggling. The prices of the cars were clearly marked. There are no trade-ins. There are few sales people and they are there to hand you keys for a test drive, not to hard sell.

You are free to drive - and smell - the cars without the displeasure of the company of a "let's make a deal" companion. Since Avis and Hertz do not seem to use the new car smell spray, there is a wide range of smells even among same makes and models. The Hertz lot served as a warren for a huge family of Rabbits. We sampled the smells of more than 20. They ranged from awful in one apparently reserved for smokers to excellent.

Our Rabbit hunt also proved to us that fabric is not always better than vinyl. In older cars it tends to smell like its riders. If a regular rider smokes, uses heavy perfumes or is addicted to those dangling little "air fresheners" which will poison anyone, the pollutant becomes absorbed by the fabric. So whatever "turns you on" is what you need to avoid.

Our unscientific survey indicated that you could save at least \$2,000 on the lower priced cars - compared to new ones - and up to many thousands of dollars on expensive cars such as Volvos by shopping at the No. 1 and No. 2 rental car agency lots. But what you see is what you get. They don't take orders and they don't add "extras" that aren't already on the machine. Depending on the model and the lot, there will be between about 20,000 and 30,000 miles on the machines. But they all have good guarantees with better ones available for a couple of hundred dollars more.

We're glad we took our friend's advice. By the way, she also is looking for another car and she's trying to buy a '76 Datsun through an estate sale. It was driven only a few thousand miles by a little old man.

CUSTOMIZING (A Car)

I have had only the experience of working with three cars to get them suitable for my occupancy. These were Fords.

In each instance I had all the "soft" plastic removed, i.e., foam cushions in seat and dashboard, upholstery fabric, head liner, rubber and carpet floor cover and floor insulation. I replaced the floor cover with nylon carpet that had been aired in a hot attic for about three months. Two layers were used to give some insulating effect on the floor. The head liner was replaced with cotton fabric.

The foam cushions in the seats were replaced with either long staple cotton (no cotton lintens) or several layers (four or five) of the aired nylon carpet. As an upholstery fabric, in one instance a nylon fabric was used, in the others a 100% cotton fabric was used.

Crevices in the fire wall between the passenger and engine compartments were covered with double layers of two inch wide masking tape on the passenger compartment side. Ventilators for outside air intake were fastened shut and sealed with masking tape. This reduced to a minimum but did not eliminate completely the influx of air loaded with motor exhausts and other pollutants.

Car heaters I do not use because of the fumes produced by the heating element and passage of hot air through the air ducts.

I have been able to use air conditioners of the add-on type for cooling. Also the Ford air conditioning units are housed in the passenger compartment and it is possible to block off and seal the outside air intake. Thus, the air return to the cooling unit comes entirely from inside the car.

The last two vehicles I prepared for my use have been pick-up body style. This reduces the passenger compartment to only one seat to work with. In each instance the box for loads has been covered with a simple camper cover that provided a carrying space out of the weather and completely separated from the passenger compartment. Thus I can get along in my car using my personal charcoal filter respirator to breathe through.

L.R. Byrd, Jr., M.D.

Note: Dr. Byrd is a clinical ecologist who practices in Port Arthur, Texas.

Courtesy of H.E.A.L. The Human Ecologist. No. 21 (Spring, 1983), pp. 10-12.

Update on Toxicity of Urea Formaldehyde Foam Insulation (UFFI)

Information Letter from the Health Protection Branch to Doctors

On March 12, 1981, the Health Protection Branch distributed an Information Letter on the subject of the toxicity of UFFI to all practicing physicians. The purpose of this letter is to update the earlier letter including information on the most recent research, clinical findings and reports to the UFFI Centre of the Department of Consumer and Corporate Affairs.

The principal agency for the Federal Government on this issue is the UFFI Information and Coordination Centre * of Consumer and Corporate Affairs. According to reports received by the UFFI Centre, it would appear that the occupants of approximately 20 per cent of homes insulated with UFFI claim that their health has been affected. The Department of Health and Welfare has always recognized that not every installation of UFFI poses a potential health hazard.

Individuals living in UFFI homes complain of the following symptoms: eye, nose and throat irritation, sneezing, coughing, rhinopharyngitis sinusitis, nose bleeds, nausea, diarrhea, headaches, irritability, sleep disturbances, fatigue, skin irritation and dermatitis. As these are non-specific symptoms the relation with their exposure to emissions from UFFI can best be demonstrated by a careful history of the problem. Total or partial disappearance of the symptoms when the individuals are away from their homes and a recurrence when they return is the best evidence to date to suggest a cause-effect relationship. However, the possibility that some factor other than UFFI may be responsible for the observed effects cannot be ruled out.

UFFI is an unstable product decomposing to emit formaldehyde. Many studies have shown that formaldehyde may gain entry to the living space and many of the recorded symptoms are compatible with formaldehyde exposure. Attempts, however, to relate severity of symptoms and formaldehyde levels have been unsuccessful for a variety of reasons. Studies have shown that the ambient concentration of formaldehyde indoors varies with humidity, temperature, time of year, wind direction and strength and the presence of other sources of formaldehyde such as particleboard, rugs, drapes, furniture, gas ranges and fireplaces. More recent investigations indicate that formaldehyde may accumulate within the wall space and be released periodically in high concentrations. Measurement techniques for formaldehyde are liable to error. Therefore it is not surprising

* For further information from the UFFI Centre, from Ottawa-Hull dial 994-0155, from the Yukon and Northwest Territories call collect 1-819-994-0155, from British Columbia dial toll-free 112-800-567-6870, and from anywhere else in Canada dial toll-free 1-800-567-6870.

that the correlation between symptoms and formaldehyde exposure is poor.

It has been speculated that gases and vapours other than formaldehyde could be released from UFFI and that these may contribute to the symptoms. Recent investigations have shown that microparticles may be released from the foam under certain conditions also. The exact nature and potential toxicity of these gases, vapours and particles are speculative and under study.

Further, some UFFI samples support the growth of moulds and fungi and their clinical significance is unknown but their allergic potential cannot be discounted.

Individuals who have a history of reactive airways are considered to be more vulnerable to the irritant effects of formaldehyde. If sensitivity to formaldehyde is suspected, then referral to an allergist is recommended. Allergy assessment should include the skin testing for moulds.

Questions that patients may ask their physician include the carcinogenic and teratogenic potential of formaldehyde. There are now three independent animal studies showing that exposure to 15 and 6 ppm formaldehyde produce nasal cancer. The significance to the human population is unknown and the currently available epidemiological studies are in progress but the results will not be available for a year or two. Untoward exposures to formaldehyde should be kept as low as possible. Pregnant women have frequently expressed concern over the hazard of formaldehyde to the unborn child. There is no convincing evidence that formaldehyde is teratogenic.

The UFFI Information and Coordination Centre has established liaison with homeowner groups and has set up a research committee to facilitate exchange of information on research activities between the various federal agencies. The Department of National Health and Welfare continues to support research on the health effects of UFFI. Current research programs include two major epidemiological studies. The Department is also participating in a World Health Organization program for epidemiological investigations on the health of residents in UFFI homes, and evaluation of the health potential of gases, vapours and particles other than formaldehyde released from UFFI.

Further questions regarding the health effects of UFFI may be addressed to the: Director,

Bureau of Chemical Hazards,
Environmental Health Directorate,
Health Protection Branch,
Ottawa, Ontario.
K1A 0L2

Individual Indoor Air Pollutants: Their Incidence and Known Effects

Bruce M. Small

Carbon Monoxide:

Major sources are gas stoves, fossil fuel furnaces and heaters. Exposure is widespread and often at levels above outdoor standards. Faulty furnaces have given rise to fatal carbon monoxide concentrations.

Radon:

Radon and radon decay products are present in most homes and may present a measurable cancer risk from radiation. Concentrations are greater in energy-efficient homes with reduced ventilation.

Nitrogen Oxides:

Tobacco smoking and indoor combustion appliances are the major sources, often at levels exceeding outdoor ambient standards. Increased incidence of illness has been correlated with elevated NO₂ and other pollutant levels in homes with gas stoves.

Sulphur Dioxide:

Indoor concentrations often lower than those outside due to adsorption on building surfaces. Fossil fuel combustion is primary indoor source.

Ozone:

Improperly maintained electrostatic air filters can produce ozone at levels above outdoor ambient standards. Persons already hyper-reactive are at greatest risk.

Asbestos:

Potential sources include many products no longer produced but still present in many homes. Fibers are carcinogenic.

Tobacco Smoke:

Tobacco smoking is the major source of indoor respirable suspended particulates, producing concentrations well in excess of outdoor ambient standards. Contains known and potent carcinogens. Detrimental effects on the health of smokers and nonsmokers have been well documented.

Formaldehyde:

Major sources include building materials and furnishings. Adverse health effects have been documented, even at levels below new indoor standards. Exposure can lead in some cases to widespread chemical susceptibility. Suspected carcinogen.

Carbon Dioxide:

Indoor concentrations are often very much greater than outdoor concentrations. Unvented kerosene heaters can produce concentrations well in excess of occupational standards. Long-term health effects from these levels are not well researched but are a cause for concern.

House Dust:

House dust contains a wide variety of compounds that can be allergenic and therefore may adversely affect the health of a significant proportion of the population. A reasonable degree of avoidance for affected persons is feasible.

Fungi (Mould):

Mould is universally present in homes but may grow significantly if there are sources of dampness. Moulds contain potent allergenic compounds and can adversely affect health. They can be controlled with proper construction methods and environmental conditions.

Bacteria/Virus:

Bacteria may grow in warm standing water such as is found in some humidifiers. Health effects are potentially serious, but the incidence is not known and may be small. Transmission of infection by bacteria and virus increases with reduced ventilation.

Aerosols:

Many consumer aerosol products yield high pollutant concentrations that could present serious health hazards. Persons with cardiovascular or pulmonary impairment are at greater risk.

Other Particles:

Various household materials and activities in addition to smoking produce suspended particulates. Some particulates can cause irritation and lung disease. More research is needed particularly concerning possible carcinogens.

Pesticides:

Pesticides are widely used indoors and measurable concentrations have been found in human blood and tissue. Numerous incidents of illness have been reported and pesticides are suspected to be potent sensitizers which can lead to a more widespread chemical susceptibility.

Ammonia:

Ammonia is often present in indoor air in small quantities and is known to irritate those susceptible. Little data on incidence or health effects at low levels is available.

Chlorine:

Chlorine compounds are present in the home particularly in laundry preparations and in municipal water. Chemically susceptible individuals are known to be adversely affected but no data is available on indoor concentrations or long term health effects.

Organic Vapours:

Indoor air often contains complex mixes of organic vapours, each at low levels but in combination at levels exceeding outdoor and other standards. Little is known of the short and long-term health effects of many of the organic compounds mentioned, at the low levels of exposure that occur. Many compounds present have detrimental effects at high concentrations and are known to affect hypersusceptible persons at levels commonly found in homes.

THE PEOPLE AFFECTED

The General Population

Air pollutants appear to adversely affect people in a number of ways:

- 1) direct toxic and irritant effects
- 2) increased susceptibility to developing disease from other causes
- 3) aggravation of existing disease
- 4) sensitization to the same and other environmental agents
- 5) as part of our total 'stress' load

Direct toxic or irritant effects, that is, symptoms expected to arise in most people when exposed to specific concentrations of a pollutant, have been described in the previous section. In many cases the data has been derived from moderate to high industrial exposures. While this does indicate the relative danger of various pollutants it does not confirm whether there are direct toxic effects from many pollutants which are present only at lower exposures levels indoors.

Barnes (1975) emphasizes that there is no simple formula by which it is possible from knowledge about toxic doses to derive a lower level that, on repeated administration, will be innocuous. He predicts that as chemical and biochemical analyses become more sensitive it will become increasingly possible to detect changes produced by the presence of small quantities of toxic compounds. However, he cautions that it may often be very doubtful whether such changes represent a disadvantage to the exposed person.

For high level exposures such as carbon monoxide and nitrogen dioxide concentrations from faulty furnaces, unventilated stoves and heaters in tightly sealed houses, it can

correctly be said that anyone in the general population who is thus exposed is at risk of developing direct toxic effects. Other agents such as formaldehyde have been shown to have characteristic irritant effects for the general population at the levels found in some homes (e.g. with Urea-formaldehyde Foam Insulation). Radon gas exposures are known to produce a certain number of cases of lung cancers in any exposed population. As more research is conducted into the long-term effects of low-level exposures, it is not only possible but likely that additional toxic and irritant effects related to indoor air pollutants are discovered.

Many of the studies dealing with lower levels of pollution exposure address effects other than direct toxic and irritant effects. They have demonstrated that at least a small proportion of the population can be expected to experience increased susceptibility to other disease, worsening of existing disease, or sensitization with or without other disease. The persons affected have been categorized according to various 'risk-groups', for example, by age or by disease.

Hammer *et al.* (1974) report that in a comparison of three high-air-pollution areas with one lower-pollution area in New York City in 1972, rates of lower respiratory disease (croup, bronchitis, and other chest infections) in children were significantly higher in the high-pollution areas. They noted that differences in family size and composition, crowding, parental cigarette smoking, or indoor air pollution due to gas stoves or gas space heaters could not explain the excess of disease in the high exposure communities. Their best judgment estimate of the average annual pollutant concentrations associated with excess childhood respiratory disease was 175 to 250 mcg/m³ of SO₂, 85 to 110 mcg/m³ of total suspended particulates, and about 13 to 14 mcg/m³ of suspended sulphates.

Studies on the incidence of respiratory problems in children exposed indoors to the pollutants emitted by gas stoves (discussed in section 1.2 under "Nitrogen Dioxide") yield similar results. Preliminary data on persons exposed to Urea-Formaldehyde Foam Insulation indicates that there may be an immuno-suppressive effect to such exposures (Sprague, 1982). Preliminary studies of UFF-exposed people in Canada have yielded similar conclusions. Dr. Albert Nantel of the Centre de Toxicologie du Québec, Laval University, Québec, testified before a Hazardous Products Act Review Board Hearing in December 1981, suggesting that for some people exposure to UFFI gases may produce a severe depression in the natural defence mechanism. He stated that in such cases where people's immunological defence processes are inactivated, they may become easy prey for various 'exogenous and endogenous aggressors', including bacteria, viruses, allergens, fungi and chemical agents.

This pattern can be expected to continue as more research is undertaken. Green (1974, p. 163) emphasizes that the lung chronically exposed to air pollutants is an abnormal lung in respect to its complement of defense mechanisms. He speculates that the suppressive effect of air pollutant exposure

on the immune response in the lung may contribute not only to the increased susceptibility to bacterial infection in the lung but may impair the development of effective immunity to viral infection as well.

Severs (1980, p. 123) notes that retrospective and prospective epidemiological studies have played the major role in demonstrating that air pollution can cause morbidity and mortality in stressed individuals. Major episodes contributing to this conclusion include: London, England (1952, 1956), Meuse Valley, Belgium (1930), Donora, Pennsylvania (1948), and New York City (1963, 1966). This association of air pollution with mortality above an expected rate and the confirmation of cardiorespiratory distress in clinical patients as well as autopsy data contributed the first convincing evidence that air pollution had any effect on health.

Green (1974, p. 163) confirms that conditions such as asthma can be modified and worsened in individuals chronically exposed to air pollution. He notes that clinical experience, and epidemiological data, both hold that attacks of asthma in children and adults are associated with acute episodes of air pollution on the one hand, and with respiratory tract infections on the other. Other studies have been cited in Section 1.2, in relation to specific air pollutants, for example increased risk to cardiac patients under exposure to carbon monoxide.

Persons who have become sensitized to low-level exposures to various pollutants represent a special risk category. In some cases a mild sensitivity to one chemical gradually worsens and 'spreads' to other chemicals (Small, 1982a, p. 53). In the more severe stages such persons are chronically ill and experience debilitating episodes of acute illness even with minute chemical exposures, at and even far below the levels commonly encountered in indoor air. Pepys (1981) notes that the increasing use of chemical agents of many sorts in the home and elsewhere poses considerable problems in diagnosis and management of sensitized persons, because of the minuteness of the amounts needed to elicit reactions.

Some researchers have also presented clinical data to prove that some persons who have no history of health problems, and therefore do not belong to a particular 'risk group', have been adversely affected. This raised the question as to how many formerly healthy people are now in 'high-risk' category because of the direct effects of pollution rather than because of independent causes of disease.

For example, in Finkel and Duel (1974, p. 185), R.E. Smith concludes that exposure to air pollution can not only cause specific allergic disease but can lower the threshold for other allergies and thus increase the incidence of allergic disease in an exposed population. He also notes that it can harm the immunologic barrier to infectious diseases caused by viruses, bacteria and possibly granulomas and fungal diseases. He suggests as a sound clinical goal the minimizing of total life-long exposures to antigens or to organic and inorganic particles. Pepys (1981) states that the findings in occupational

asthma show that industrialization in itself and its influence on the home could be partly related to the more common diagnosis of asthma. He notes at the same time that an understanding of the nature of the relevant allergic mechanisms is needed.

Evidence indicating that exposure to a particular indoor pollutant or mix of pollutants can induce a state of general chemical susceptibility has been put forth in connection with exposure to gases from Urea-formaldehyde Foam Insulation and particleboard (Small, 1982a, p. 60). The role of other exposures in bringing about this state will be discussed further below.

In addition it must be recognized that the distinction between the 'healthy' people and those supposedly at higher risk when exposed to air pollution is an illusory one. Calabrese (1978, p. 193-197) points out that susceptibility to pollution varies widely for any one individual over time. When high-risk periods during everyone's lifetime are taken into account (when very young and very old, during fetal development, in adolescence, and during episodes of temporary illness), this includes the entire population. In addition, each individual has daily weak points or times of greatest sensitivity to the toxic effects of pollutants. Normal circadian rhythms and disruptions in them caused by jet lag or shift work are also suspected to cause periods of increased susceptibility.

The California Department of Consumer Affairs (1982, p. ES3) commented that during preparation of their overview study, the authors encountered the common assertion that people especially sensitive to indoor pollution are "different". They were often referred to as "canaries", by analogy with canaries used in mineshafts to detect the presence of gases. However, of those reporting environmental sensitivity to low concentrations of pollutants on a study questionnaire, almost half reported themselves to have been healthy and without special sensitivities or complex allergies up to a certain time, i.e. totally indistinguishable from the 'non-canaries'. Then an illness (usually mononucleosis or "viral" hepatitis) or chemical exposure rendered them highly sensitive to many environmental factors. Previously productive, happy people reported themselves to be "so sensitive to the modern world that we cannot adapt or live unencumbered".

The following subsections deal more specifically with high-risk groups. The first deals with persons who are known to be at higher than normal risk to adverse effects of pollutants because of age or specific disease. The second describes chemical susceptibility, a condition in which people are adversely affected more directly, usually from even relatively small exposures to a wide variety of common pollutants both indoor and out.

Specific High-Risk Groups

Cooper (1973) stresses that it is accepted in occupational medicine that individuals differ widely in their susceptibility to toxic agents and other environmental stresses. Some individuals show effects at concentrations which do not affect the majority, while at the other end of the dose-response curve there are individuals who are unusually resistant.

Calabrese (1980) notes that it has been recognized that there is a differential susceptibility of humans to environmental carcinogens and toxicants, and that it has been the subject of a United States Environmental Protection Agency conference (Conference on the Increased Human Susceptibility to Environmental and Occupational Pollutants, University of Massachusetts, Amherst, Massachusetts, June 1978).

Calabrese (1978b) defines 'high-risk groups' as those individuals who experience toxic and/or carcinogenic effects significantly before the general population as a result of one or more biologic factors, including developmental influences, genetic factors, nutritional inadequacies, disease conditions, and behavioural or life style characteristics. Calabrese suggests that identification of such high-risk groups is important in setting standards:

Knowing which individuals are at high risk with respect to pollutants is very important, because these are the people who will be the first to experience morbidity and mortality as pollutant levels increase. If the high-risk segments are protected, the entire population is protected. Consequently, information concerning both the identification and quantification of high-risk groups should play an integral role in the derivation of standards for pollutants in both ambient and industrial air as well as in drinking water. (Calabrese, 1978b, p. 56)

Calabrese (1978a and 1978b) emphasizes that it is an illusion to assume that a threshold for chemical exposure exists in the highly diverse human population. Nor can it be assumed that separate thresholds exist for so-called normal people and for high-risk groups. Each high-risk group has multiple variations and ultimately, each individual has a unique threshold.

Specific high risk groups include people with easily identifiable risk characteristics, eg. the very young, the very old, pregnant women, people with respiratory ailments or cardiovascular disease, people with certain genetic backgrounds, dietary habits or nutritional deficiencies, people who consume large amounts of alcohol or drugs, people who smoke, and various others.

Calabrese (1978, p. 187) identified a number of high-risk groups along with the pollutant class to which they are or may be hypersusceptible. The terms used are general. Readers are referred to the cited work for a more specific list of functional disorders and further literature references.

<u>High-Risk Category</u>	<u>Pollutant Class</u>
immature immune system	respiratory irritants
deficient immune system as a function of age	respiratory irritants carcinogens
circadian rhythms including phase shifts (jet lag, shift work)	hydrocarbon carcinogens and probably most other pollutants
cystic fibrosis	respiratory irritants
immunoglobulin A deficiency	respiratory irritants
immunologic hypersensitivity	isocyanates
serum alpha ₁ antitrypsin	respiratory irritants
vitamin A deficiency	hydrocarbon carcinogens
iron deficiency	hydrocarbon carcinogens
riboflavin deficiency	hydrocarbon carcinogens
asthmatic disease	respiratory irritants
chronic respiratory disease	respiratory irritants
heart disease	respiratory irritants
smoking	hydrocarbons
drug taking	numerous potential substances

Size of the High-Risk Population

Calabrese (1978, p. 193-197) makes the point that it is erroneously assumed that high-risk groups represent only a small number of people. In fact, taken together, they represent a large proportion of the population. In the U.S. population he cites a total of 25-35 million people who would be at higher risk in exposure to a number of pollutants because of chronic respiratory disease and heart disease alone. Figures in Canada are likely similar but require confirmation. The total of identifiable high-risk groups because of existing disease exceeds 20% of the population. When age, smoking and nutrition are taken into account the figure is greater than one third.

There is considerable evidence that persons with cardiovascular and respiratory diseases may be at increased risk from exposure to pollutants in general. Carnow and Carnow (1974, pp. 127-156) indicate that aggravation of symptoms in such people appears to occur at lower levels than local ambient air quality standards.

Persons who are already living in relatively polluted surroundings may also represent a high-risk group under continued or increased exposure. Fairbairn and Reid (1958) demonstrated a relation between higher pollutant levels and generally lower levels of pulmonary function, in city populations exposed to high pollution compared with those exposed to lower pollution levels. Calabrese (1978a) has also identified smokers as being

at greater risk from the adverse effects of other pollutants.

Brundrett (1979, p. 4) states that the proportion of the population that is susceptible to "humidifier fever" (see section 1.2 under "Bacteria") appears to depend on the contamination level. If it is sufficiently high then all the occupants will experience the symptoms. He notes that there does not appear to be an age factor but that there may be a higher susceptibility for allergic individuals. He reports that in a 1977 outbreak researchers found that half of the people who experienced difficulty were also sensitive to common allergens as shown by a skin test.

Calabrese (1978, p. 171) notes that in the U.S. high-risk segments of the population were not specifically considered in the standard-setting process because there was not sufficient information about them to provide any quantitative assessment of risk, and because it was assumed that they composed only a small segment of the population. Despite the fact that safety factors recognize that certain people are more sensitive to pollutants than others, they are inherently imprecise. He states:

The identification and quantification of individuals at high risk to environmental or occupational pollutants is of profound significance for the determination of public policy with respect to the well-being of our economy and our personal health. Specifically, it provides a reasonable characterization of the type and number of people who would first experience morbidity and possibly death at particular levels of pollutant exposure. Such a characterization provides practical applications to deal with the numerous occupational and environmental health problems effectively.

* This study was conducted by Bruce M. Small and Associates Limited for Canada Mortgage and Housing Corporation under Part V of the National Housing Act. The analysis, interpretations and recommendations are those of the consultant and do not necessarily reflect the views of Canada Mortgage and Housing Corporation or those divisions of the Corporation that assisted in the study and its publication.

Indoor Air Pollution and Housing Technology. Prepared for the Planning Division Policy Development and Research Sector Canada Mortgage and Housing Corporation by Bruce M. Small (P.Eng.) and Associates Limited, R.R. 1, Goodwood, Ontario, L0C 1A0. CMHC Project Manager, Judy Lorimer. CMHC Technical Adviser, Peter Russell. August, 1983.

Editor's Note: This is a comprehensive, detailed report on the totality of problems inherent in indoor air pollution. There are many recommendations for solving or alleviating these problems in one's home. Our Canadian readers should be able to find this report in their libraries, our American readers could perhaps contact Bruce Small.

Bibliography

- Barnes, J.M. (1975). "Assessing Hazards from Prolonged and Repeated Exposure to Low Doses of Toxic Substances." British Medical Bulletin 31(3), 196-200.
- Brundrett, G.W. (1979). "Maintenance of Spray Humidifiers". Electricity Council Research Centre, Copenhurst (England). NTIS Report PB80-124944.
- Calabrese, E.J. (1978a). "Pollutants and High-Risk Groups: The Biological Basis of Increased Human Susceptibility to Environmental and Occupational Pollutants". John Wiley & Sons, New York, 1978.
- Calabrese, E.J. (1978b). "Methodological Approaches to Deriving Environmental and Occupational Health Standards". John Wiley & Sons, New York, 1978.
- Calabrese, E.J. (1980). "Nutrition and Environmental Health: The Influence of Nutritional Status on Pollutant Toxicity and Carcinogenicity. Volume 1 - The Vitamins". John Wiley & Sons, New York.
- California Department of Consumer Affairs (1982). "Clean Your Room!: A Compendium on Indoor Pollution." State of California, U.S.A.
- Carnow, B.W., and Carnow, V. (1974). "Air Pollution, Morbidity and Mortality and the Concept of No Threshold", Advances in Environmental Science and Technology. Vol. 3 by J.W. Pitts and R.L. Metcalf, editors, Wiley, New York, 1974.
- Conference on Increased Human Susceptibility to Environmental and Occupational Pollutants. Environmental Protection Agency, U.S. University of Amherst, Amherst, Massachusetts, June, 1978.
- Cooper, W.C. (1973). "Indicators of Susceptibility to Industrial Chemicals". Journal of Occupational Medicine 15(4), 355-359.
- Fairbairn, A.S. and Reid, D.D. (1958). "Air Pollution and Other Local Factors in Respiratory Disease". British Journal of Preventive Social Medicine, 12(94).
- Finkel, A.J., and Duel, W.C. "Clinical Implications of Air Pollution Research", AMA Air Pollution Medical Research Conference, Dec. 5-6, 1974, Publishing Sciences Group, Inc., Acton, Massachusetts.
- Green, G.M. (1974). "Air Pollution, Host Immune Defenses and Asthma: A Review". In "Clinical Implications of Air Pollution Research", by Finkel, A.J., and Duel, W.C., AMA Air Pollution Medical Research Conference, Dec. 3-5, 1974, Publishing Sciences Group, Inc., Acton, Massachusetts.

- Hammer, D.J. et al. (1974). "Air Pollution and Childhood Lower Respiratory Disease I: Exposure to Sulphur Dioxides and Particulate Matter in New York, 1972". In "Clinical Implications of Air Pollution Research" by Finkel, A.J., and Duel, W.C., AMAM Air Pollution Medical Research Conference, Dec. 5-6, 1974, Publishing Sciences Group, Inc., Acton, Massachusetts.
- Pepys, J. (1981). "Chemical Dusts and Vapours and Fumes as Causes of Asthma". International Symposium on Indoor Air Pollution, Health and Energy Conservation, October 13-16, 1981, Amherst, Massachusetts.
- Severs, R.K. (1980). "Air Pollution and Health", Environment and Health. Edited by N.M. Trieff. Ann Arbor Science Publishers, Inc., Ann Arbor, Michigan, U.S.A., 1980.
- Small, B.M. (1982a). The Susceptibility Report: Chemical Susceptibility and Urea-Formaldehyde Foam Insulation. Deco-Plans Inc., 3260 Marie-Victorin Blvd., Longueuil, Québec, 1982.

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INDOOR AIR POLLUTION - THE QUESTION OF VENTILATION

G. Joy Underwood

Chemicals are a fact of life in today's world. The Center for Science in the Public Interest points out that more chemicals are found in the average North American home than in a chemical laboratory of a century ago. And what is even more alarming is the fact that many homemakers know little about these chemicals and even less about their toxic effects when mixed or misused.

Danger lies not only in the variety but also in the sheer quantity of chemicals used in the home. A few drops of solvent may do little harm to many people, but an open can evaporating over a period of time may be fatal to the inhabitants of a house.

The problems presented by the variety and amounts of household chemicals are compounded for various products are often used in enclosed spaces. Many allergic people fail to realize that the lack of fresh air supply can exacerbate their problem. Dust and chemical vapours may accumulate more in a tightly enclosed home.

Most of the problems with household vapours and air-borne particles are worse in the winter months when windows are closed most of the time and individuals are breathing and rebreathing the same air. It should also be pointed out that because children breathe more air per unit body weight and have respiration rates up to ten times those of adults, their systems must handle greater quantities of air impurities. This makes them more susceptible to inhalation hazards. Also, due to the fact that toxic materials can be more concentrated in a child's body than in a larger adult's body, the smaller the child the greater is the risk.

Proper ventilation, then, is an important consideration in assessing the indoor air pollution of a home. House ventilation rates are usually measured in air changes per hour (ACH) - the number of times each hour that indoor and outdoor air switches places. In the average North American house, that rate is $\frac{1}{2}$ to one and one half ACH. But it is not unusual for new, very tight houses to exchange all their air only once every five hours or more. Thus, the air stays around longer and so do the pollutants. The air in your house should be exchanged completely at least once every two hours or $\frac{1}{2}$ ACH.

If you and your family experience pollution-related symptoms such as headaches, nausea, dizziness, forgetfulness, difficulty concentrating, anxiety, depression, chronic fatigue, irritability, lung irritation, muscle aches, restlessness, and anti-social behaviour, perhaps your house is tighter than $\frac{1}{2}$ ACH.

Air exchange is closely related to relative humidity - dryness would indicate that there is a reasonable rate of leakage to the outside in relation to fresh air intake. Thus, if you need to use a furnace humidifier during the winter, this is a pretty good indicator that you are probably not having air exchange problems.

Some energy management companies do infiltration (air exchange) testing. Inquire about this service if you wish to check out your house for the possibility of an air exchange problem. If needed, some type of air-to-air heat exchanger, which allows you to ventilate the house without losing much of the heat, can be installed. Several companies in the United States and Canada either manufacture or distribute such devices.

RESOURCES

Food Sources

Honeycomb, 131 Wyse Road, Dartmouth, Nova Scotia.
The Natural Way, Downsvie Mall, Sackville, Nova Scotia.
The Staff of Life, Clayton Park Shopping Center, Halifax, Nova Scotia.
Sports Nutrition Centre, 148 Portland St., Dartmouth, Nova Scotia.
Victoria Grocery (Salo Natural Foods), 5483 Victoria Road, Halifax, NS
Any Sobeys store in Nova Scotia.

Clothing and Fabrics

Ralph Lauren label at Simpsons Dept. stores across Canada.
Daniel Hechter label at Fairweather's stores.
Local crafts people.

Home Furnishings

IKEA stores throughout Canada for curtains, fabrics, some furniture.
Import bazaar stores in major cities for cane chairs and other items.
7th Heaven, Arglye Street, Halifax, NS carries futons, frames and bedding, also other furniture items.
Atlantic Medigas, Burnside Industrial Park, Dartmouth, NS -air cleaners.
Nutone Industries, Burnside Industrial Park, Dartmouth, NS - lighting and heat fans.

Cosmetics and Toiletries

Swiss herbal products at some health food outlets across the country.

Cleaning Aids

Hawes lemon oil for furniture.

Travel

Face masks available from Safety Supply, Burnside Industrial Park, Dartmouth, Nova Scotia.

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Books

Bell, Iris R. <u>Clinical Ecology: A New Medical Approach to Environmental Illness.</u>	--- \$8.00	\$8.25
Crook. <u>Tracking Down Food Allergies</u>	--- \$9.75	\$11.00
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Rapp, Doris. <u>Allergies and Your Family</u>	---	\$10.35	\$11.25
Rinkel, Herbert J., Randolph, Theron G., and Zeller, Michael. <u>Food Allergy</u>	--	\$19.00	\$21.25
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